welding monitor sensor and transmitter component and on a user selected radio frequency channel.

(b) Means to validate the received data and detect and discard corrupted data.

(c) Means to convert the received arc voltage and/or current measurement data into a format that can be sent to a personal computer via a data port.

(d) Means to send the arc voltage and/or current measurement data to a personal computer via a data port.

(e) Means of displaying the received arc voltage and/or current measurements in near-real-time on a workstation personal computer console monitor.

(f) Means of storing the received arc voltage and/or current measurement data on computer disk storage media.

3. The apparatus of claim 1 wherein:

(a) Said arc welding equipment in first named means supplies alternating and/or direct current at its output;

(b) Said second named means is a welder output voltage and/or current sensor connected to the arc welding equipment at a location conducive to arc voltage and/or current;

(c) Said second named means is a sensor that converts voltage and/or current measurements into digital form;

(d) Said third named means is a microprocessor that converts the digital information from the sensor into a format that can be transmitted by the radio frequency transmitter;

(e) Said fourth named means is a microprocessor that controls the radio frequency transmitter channel selection and operation;

(f) Said fifth named means is a microprocessor that sends the voltage and/or current measurements to the radio frequency transmitter for transmission;

(g) Said fifth named means is a radio frequency transmitter that transmits the voltage and/or current data to the receiving and display component of claim 2.

4. The apparatus of claim 2 wherein:

(a) Said first named means is by a microprocessor controlled radio receiver that receives the data transmitted by the apparatus in claim 1 on a user selected radio frequency channel;

(b) Said second named means is by algorithm analysis of received data accomplished by software embedded in a microprocessor;

(c) Said third named means is by a microprocessor and embedded software that converts the received voltage and/or current measurement data into a format that is suitable for transmission to a personal computer via a serial data port;

(d) Said fourth named means is by a microprocessor that sends the received voltage and/or current measurement data via a data port in the appropriate format to a personal computer;

(e) Said fifth named means is by computer software programs that allow the user of the apparatus to graphically display the voltage and/or current measurement data.

(f) Said sixth named means is by computer software programs that allow the user to analyze and store voltage and/or current measurement data.

ABSTRACT OF THE DISCLOSURE

An arc welding monitor designed to aid in the instruction of electric arc welding, provide data that can be used for inspection and quality assurance of individual welds, and provide an archive record of the arc welding process for future reference and analysis.

A sensor is used to unobtrusively measure the welding arc parameters. The measurements are transmitted in real-time from the welding station to an instructor/supervisor workstation via a radio frequency data link. The received data is graphically displayed in near-real-time on the instructor/supervisor workstation computer screen. The data can be analyzed by standard statistical analysis tools to qualitatively grade the weld, be stored on computer disk storage media for later retrieval and analysis, or printed in a graphic display. Interpretation of the graphical display and statistical analysis is used to critique and instruct welder operator technique or to indicate process flaws that warrant further inspection of suspected welds.